

### Abstract of the Disclosure

A method of fabricating an integrated circuit having shallow junctions is provided. A SOG layer containing impurities is formed on a semiconductor substrate. Impurity ions are additionally implanted into the SOG layer by a plasma ion implantation method to increase the concentration of impurities in the SOG layer. The impurity ions contained in the SOG layer having the increased concentration of impurities are rapidly heat-treated and diffused into the semiconductor substrate by a solid phase diffusion method to form shallow junctions. As a result, the concentration of impurities is precisely controlled by the plasma ion implantation method, and impurity ions are not directly implanted into the semiconductor substrate. Thus, the crystal structure of the semiconductor substrate is not damaged. Moreover, if the method of fabricating the integration circuit having the shallow junctions is applied after a gate electrode is formed, a LDD region and a highly doped source/drain region can be formed by a self-aligned method.